



GOBIERNO
DE ESPAÑA

MINISTERIO
DE MEDIO AMBIENTE

AEMet
Agencia Estatal de Meteorología

The BSRN twin-stations: IZAÑA (IZA) and SANTA CRUZ (SCO)

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IZAÑA STATION



Latitude 28°18' N

Longitude 16°29'W

Elevation 2.400 m.a.s.l

IZAÑA STATION

- **Tenerife is an island of volcanic origin, located at 28.5°N, 16°W. Tenerife is about 300 km away the African continent and about 1200 km from the Iberian Peninsula. The station is located in the Atlantic Ocean.**
- **The Izaña Station is not influenced by local sources of pollution or other changing local anthropogenic factors.**
- **The observatory is on a high mountain. This may effect the local albedo, since the observing site is often surrounded by a stratocumulus sea below the observatory.**
- **Izaña is a WMO Global Atmospheric Watch (GAW).**
- **Izaña is part of NDACC, AERONET, MPLNet, CRISTA, ICOS, GALION, GEOMON and EUMETNET networks**

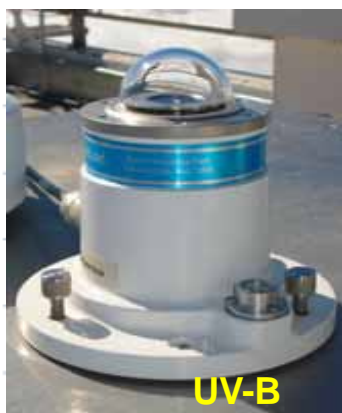
INSTRUMENTS/MEASUREMENTS AT THE IZAÑA STATION

QUANTITY	INSTRUMENT
Global Radiation	Pyranometer CM-21 K&Z
Direct Radiation	Pyrheliometer CH-1 K&Z
Diffuse Radiation	Pyranometer CM-21 K&Z
Longwave Radiation	Pyrgeometer CG-4 K&Z
Ozone	Spectrophotometer Brewer
UV-B Radiation	Pyranometer Yankee YES
UV-A Radiation	Pyranometer UV-A-ST K&Z
Net Radiation	Net Radiometer K&Z
Sky Imagen	SONA Camara
Aerosol Optical Depht	Photometer CIMEL
O ₃ ,T, P, H, Wind	Ozone Soundings

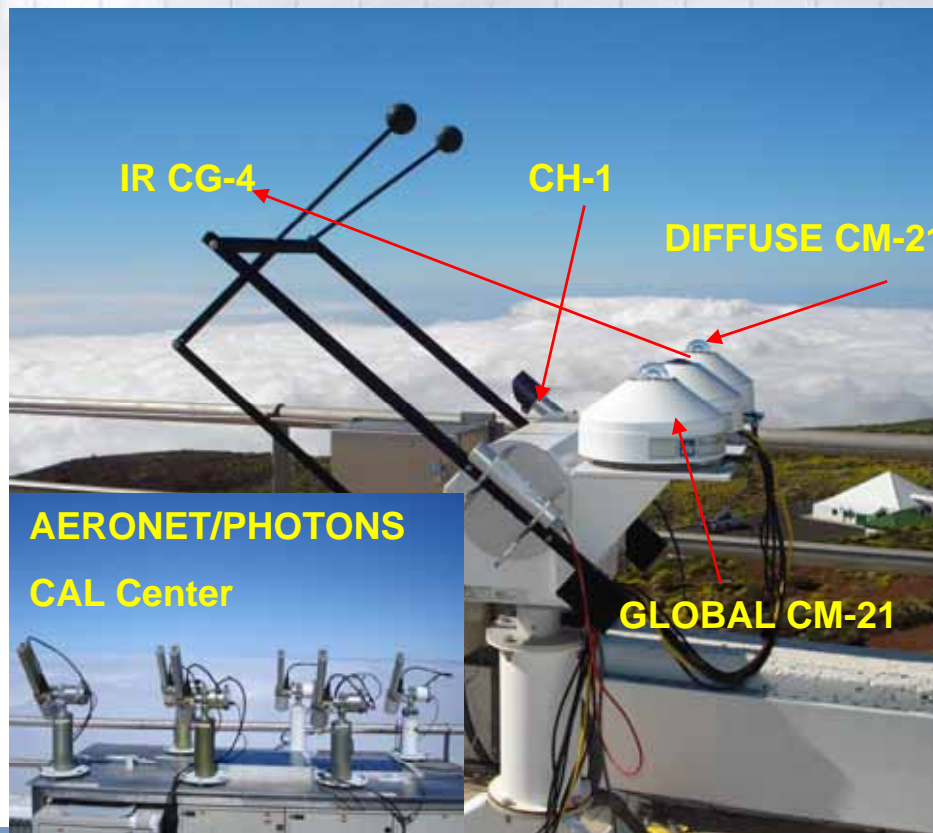
IZA BSRN



UV-A



UV-B



IR CG-4

CH-1

DIFFUSE CM-21

GLOBAL CM-21

AERONET/PHOTONS
CAL Center



WRC/PFR
CAL facility



Radiosondes and
O3sondes

CAMPBELL CR-3000



Brewer RBCC-E triad
CAL Center



Net radiation
Global & NIR



Total sky camera

Optical laboratory at Izaña (set up in 2009)



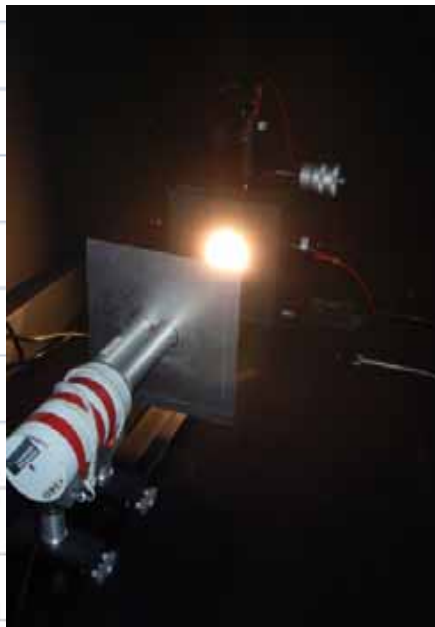
Horizontal set-up



Vertical set-up



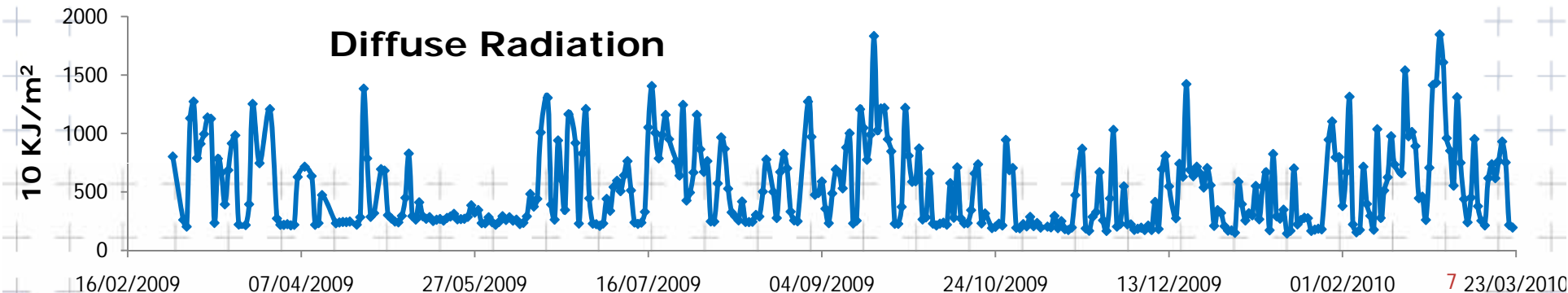
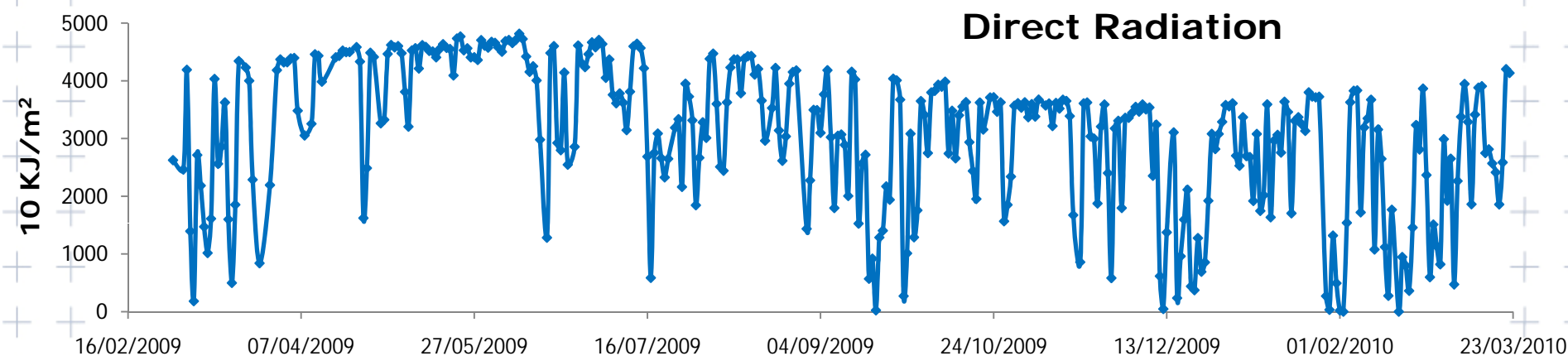
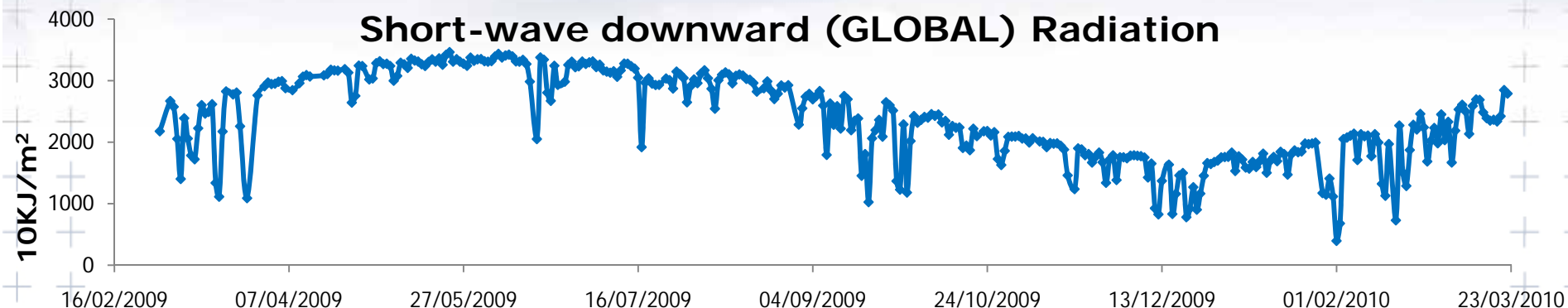
Angular Response



Integrating sphere

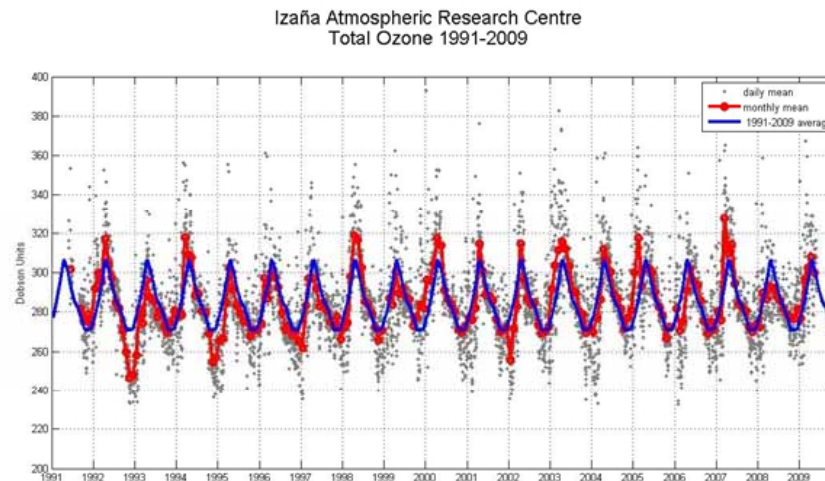
+ Spectral response with an Optronics double monochromator spectrometer

IZA MEASUREMENTS (1)

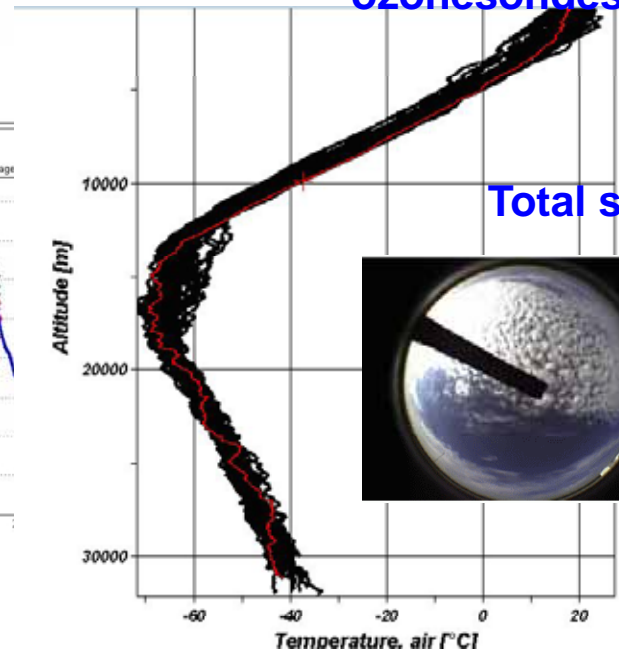


IZA MEASUREMENTS (2)

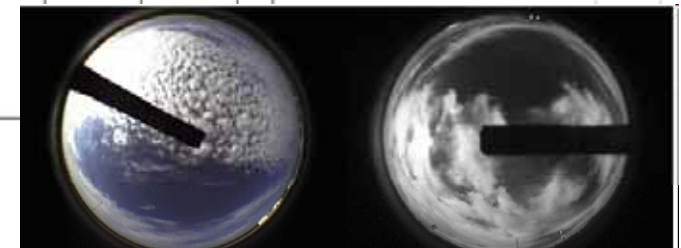
Total ozone (since may 1991)



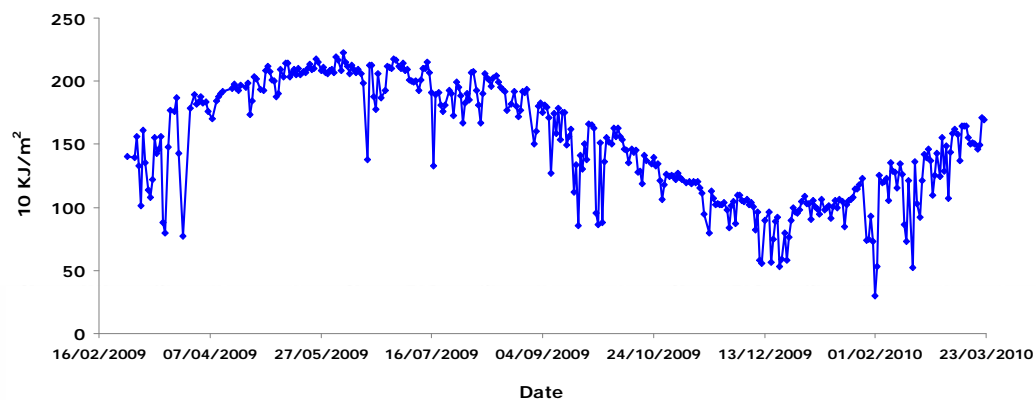
Radiosondes (since late 70s); ozonesondes (since Nov 1992)



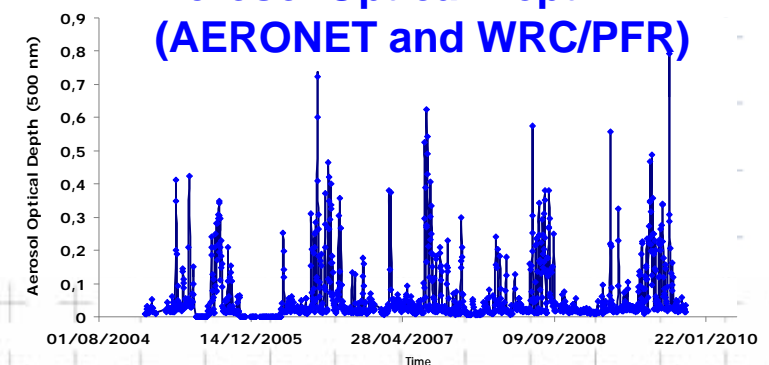
Total sky Images: SONA



UV-A Global Radiation



Aerosol Optical Depth (AERONET and WRC/PFR)



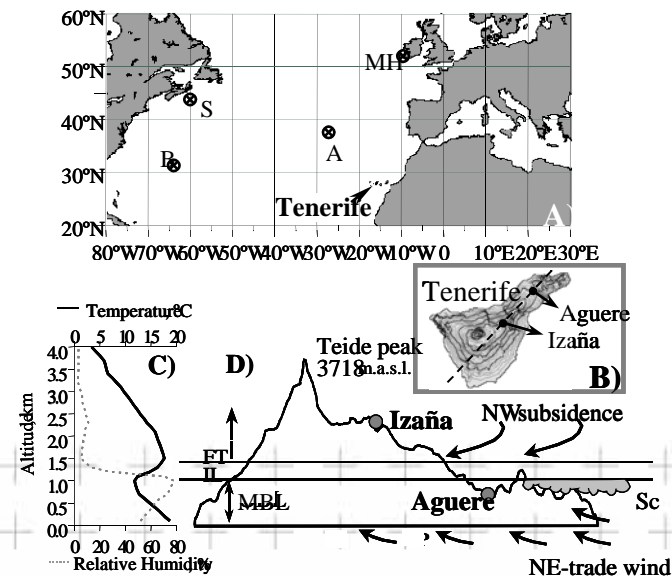
COMPLEMENTARY STATION: SANTA CRUZ DE TENERIFE (SCO)



Why a BSRN twin-stations proposal ?

Studies related to marine boundary layer vs free troposphere conditions in the subtropical region:

- Marine boundary layer vs free-troposphere radiation characterization
- Impact of stratocumulus (sea cloud) on radiation
- Radiative forcing of dust-loaded Saharan air masses:
 - Low level intrusions in winter (Saharan air layer thickness: from sea level to about 2.5 km altitude)
 - High level intrusions in summer (Sahara air layer thickness: from 500 m to about 6 km altitude)



SANTA CRUZ STATION (SCO)

Latitude 28°28' N

Longitude 16°14'W

Elevation 52 m.a.s.l

Free-horizon

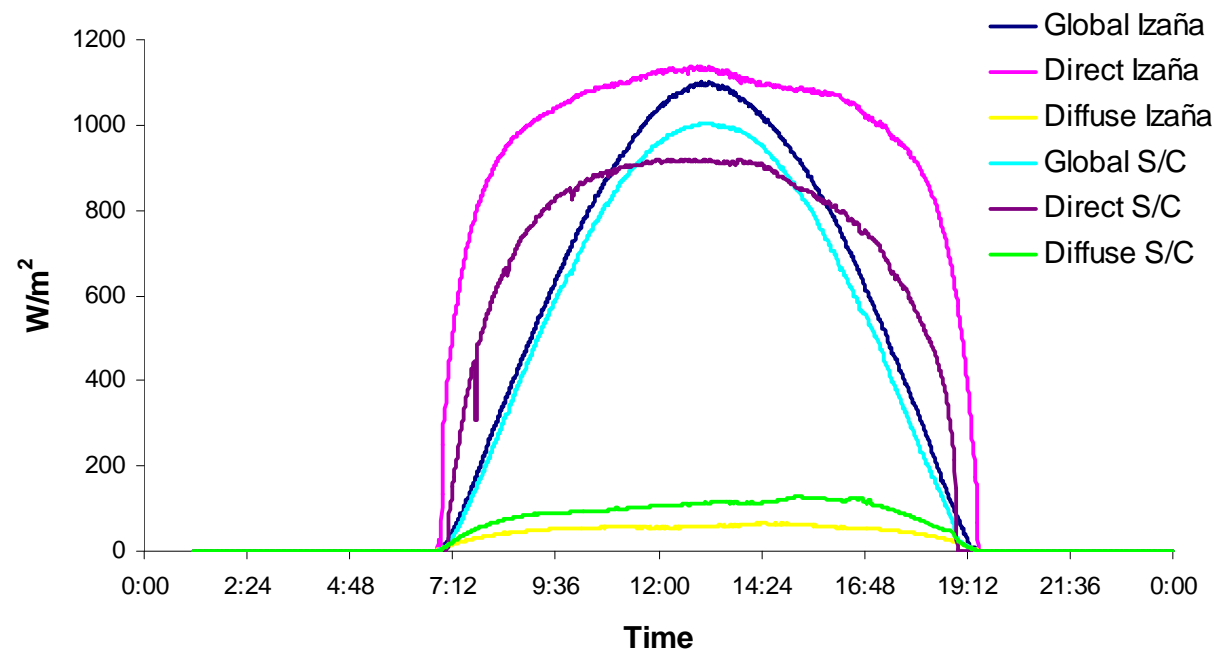


Ancillary measurements:

- Cimel (Santa Cruz de Tenerife AERONET station)
- Aerosol Micropulse lidar (NASA-MPLNet)
- Total sky camera (soon)
- In-situ aerosols (PM10 and PM2.5)

COMPARISON BETWEEN STATIONS

2009/04/05



DAILY MEAN 2009-04-05			
	Global Radiation 10 KJ/m ²	Direct Radiation 10 KJ/m ²	Diffuse Radiation 10 KJ/m ²
IZA	2991.58	4397.20	218.97
SCO	2717.72	3231.21	408.77

Carmen Guirado

Ángel de Frutos

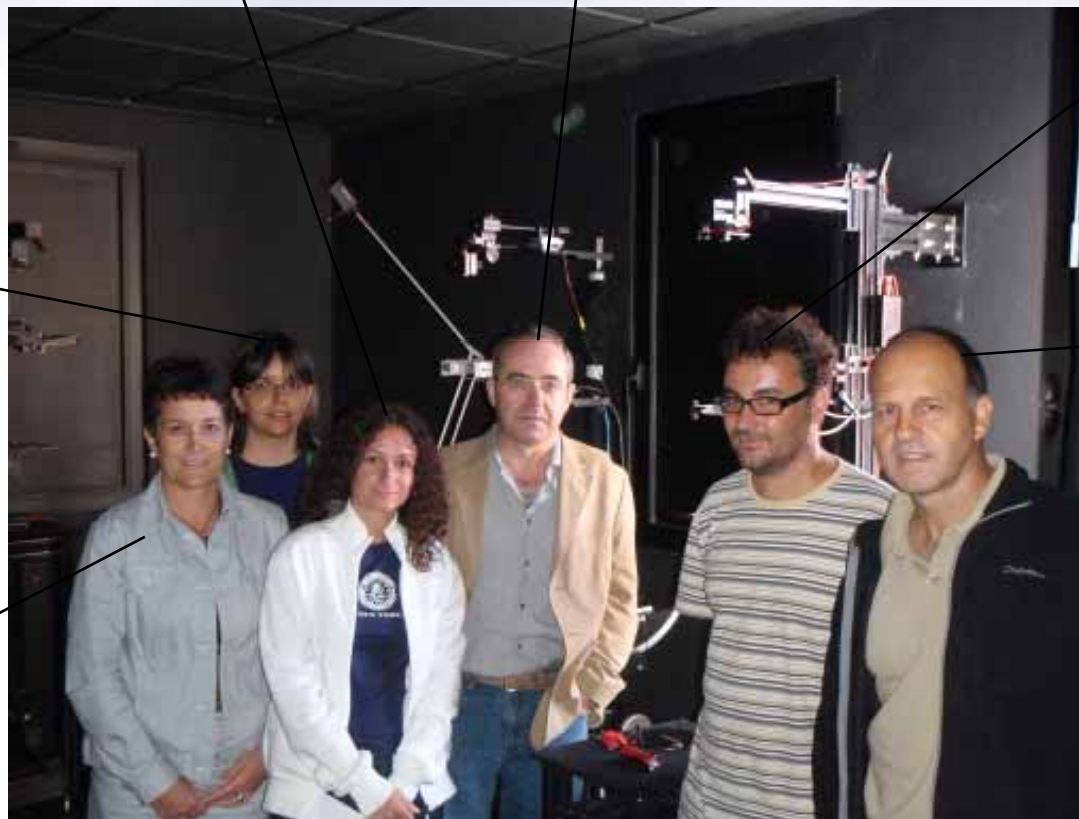


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Thank you !